Transport GT24

B2912

Service Engineer’s Manual

PREFACE

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Version 1.0

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Operation is subject to the following conditions:

1) This device may not cause harmful interference, and

2) This device must accept any interference received including interference that may cause undesired operation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Plug the equipment into an outlet on a circuit different from that of the receiver.

Consult the dealer on an experienced radio/television technician for help.

Notice for Canada

This apparatus complies with the Class B limits for radio interference as specified in the Canadian Department of Communications Radio Interference Regulations. (Cet appareil est conforme aux norms de Classe B d'interference radio tel que specifie par le Ministere Canadien des Communications dans les reglements d'ineteference radio.)

Notice for Europe (CE Mark) This product is in conformity with the Council Directive 89/336/EEC, 92/31/EEC (EMC).

CAUTION: Lithium battery included with this board. Do not puncture, mutilate, or dispose of battery in fire. Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulations.

About this Manual

This manual provides you with instructions on installing your Transport GT24, and consists of the following sections:

Chapter 1: Provides an Introduction to the Transport GT24 B2912 barebones, packing list, describes the external components, gives a table of key components, and provides block diagrams of the system.

Chapter 2: Covers procedures on installing the CPU, memory modules, an optional PCI card, and hard drives.

Chapter 3: Covers removal and replacement procedures for pre-installed components.

Appendix: Describes the differences between mainboard BIOS and system BIOS. The cable connection tables are also provided for reference of system setup.

Conventions

The following conventions are used in the manual:

Note: Calls attention to important information.

Warning: Provides information to prevent harm to user or damage to equipment.

SAFETY INFORMATION

Before installing and using the Transport GT24, take note of the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Do not block the slots and opening on the unit, which are provided for ventilation.
- Only use the power source indicated on the marking label. If you are not sure, contact the Power Company.
- The unit uses a three-wire ground cable, which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
- Do not place anything on the power cord. Place the power cord where it will not be in the way of foot traffic.
- Follow all warnings and cautions in this manual and on the unit case.
- Do not push objects in the ventilation slots as they may touch high voltage components and result in shock and damage to the components.
- When replacing parts, ensure that you use parts specified by the manufacturer.
- When service or repairs have been done, perform routine safety checks to verify that the system is operating correctly.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- Cover the unit when not in use.

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Chapter 1: Overview

1.1 About the TYAN Transport GT24 B2912

Congratulations on your purchase of the TYAN Transport™ GT24 B2912, a highly-optimized rack-mountable barebone system. The TYAN Transport™ GT24 B2912 offers the latest in dual processor server systems, providing a rich feature set and incredible performance. Leveraging advanced technology from AMD®, the TYAN Transport™ GT24 B2912 based server system are capable of offering scalable 32 and 64-bit computing, high-bandwidth memory design, and a lightning-fast PCI-E bus implementation. The TYAN Transport™ GT24 B2912 not only empowers your company in today's demanding IT environment but also offers a smooth path for future application usage.

The TYAN Transport™ GT24 B2912 uses TYAN's latest tooling-made chassis featuring a robust structure, tool-less and modularized design, and a solid mechanical enclosure. All of this provides the TYAN Transport™ GT24 B2912 the power and flexibility to meet the needs of nearly any server application.

1.2 Product Models

Model	HDD Bays	HDD Supported	HDD Backplane	Motherboard
B2912G24V4H	Removable, 4 HDDs	SATA	4-port SAS/SATA	S2912G2NR
B2912G24W4H	Removable, 4 HDDs	SAS/SATA	4-port SAS/SATA	S2912WG2NR

B2912G24V4H

B2912G24W4H

1.3 Features

Enclosure
- Industry 19” rack-mountable 1U chassis
  - (1) slim DVD-ROM bay
  - (4) 3.5” HDD bays
- Dimension: D 25.4 x W 17.2 x H 1.72 inch (645x436x43.6mm)

Processors
- Dual 1207-pin ZIF sockets
- Supports up to two AMD Opteron™ 2000 series processors
- Two (2) onboard 4-phase digital VRMs

Chipset
- NVIDIA NFP 3600
- Winbond W83627HF Super IO
- Analog Devices ADT7476 Hardware Monitoring IC

Memory
- Eight (8) 240-pin DDRII DIMM sockets
- Supports up to 16GB of Registered of DDRII 667/533/400 memory

Expansion Slots
- One (1) x8 and one (1) x16 PCI-E with risers (pre-installed)
- Optional PCI-X riser card
- One (1) Tyan “TARO” SO-DIMM connector

Back I/O Ports
- One (1) PS/2 Mouse and One (1) Keyboard ports
- One (1) 9-pin UART Serial port
- One (1) 15-pin VGA port
- One (1) RJ45 connector for OPMA
- Two (2) USB2.0 ports
- Two (2) RJ45 10/100/1000 Base-T port w/ activity LED

Front Panel Features
- I/O
  - (2) USB 2.0 ports
- LED indicators
  - Power LED
  - (2) LAN LEDs
  - HDD active LED
  - Warning LED
  - ID LED
- Switches
  - Power switch
  - Reset switch

Storage
- Model B2912G24V4H:
  - Three (3) Integrated dual port SATA Controllers from NFP 3600
  - Supports 3Gb/s per port
  - Supports Host RAID 0, 1, 10, 5, JBOD
- Model B2912G24W4H:
  - LSI 1064E SAS controller
  - Four (4) SAS ports
  - Supports RAID 0, 1E, 1

Networking
- Two Gigabit Ethernet ports (via Marvell PHY 88E1121)

Video
- ATI® ES1000 controller
- PCI interface
- 32MB DDR memory

Motherboard
- B2912G24V4H
  - TYAN Thunder K9ER S2912G2NR
- B2912G24W4H
  - TYAN Thunder K9ER S2912WG2NR
- E-ATX footprint (13”x12”)

BIOS
- Phoenix 8Mbit LPC Flash ROM
- Supports ACPI (S0, S1, S3, S4, S5)
- PnP, DMI2.0, WfM 2.0 power management
- Serial Console Redirect
- User-configurable H/W monitoring
- Auto-configuration of hard disk types
- Multiple boot options
- 48-bit LBA support

Server Cooling

- (5) 40*40*28mm 14500rpm heavy-duty fans with fan speed monitor/control
- (2)Passive CPU Heatsink

Server Management

- Automatic fan speed control
- Supports Tyan Server Management (TSM)
- Optional TYAN SMDC kit, IPMI 2.0 compliant

Power Supply

- EPS 12V, 1U, 500W with PFC
- 100V~240V AC input

Regulatory

- FCC Class B (Declaration of Conformity)
- CE (Declaration of Conformity)

Environment Temperature

- Operating temperature (5^{o}C~35^{o}C)
- Non-operating temperature (-40^{o}C~70^{o}C)

1.4 Unpacking

If any items are missing or appear damaged, contact your retailer or browse to TYAN's Web site for service: http://www.tyan.com.

The Web site also provides information on other TYAN products, plus FAQs, compatibility lists, BIOS settings, and more.

1 x Tyan driver CD

Power Cords
Left to right: Europe, US

HDD Screws

Mounting Ears & Screws

Barebone Manual &
Mainboard Manual

Air Duct

PCI-X Riser Card
M2061 (Option)

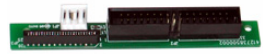
2 x CPU Heatsinks

FDD Kit

FDD Cable

FDD Rails & Screws

FDD Backplane Cable



FDD Backplane

Rail Kit

Mounting Bracket x 4

Sliding Brackets
Front L-Bracket x 2
Rear L-Bracket x 2

Screws Kit

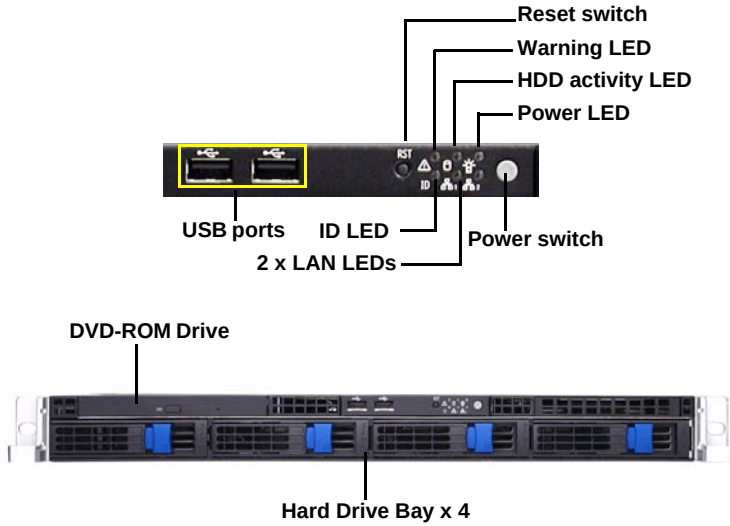
Sliding Rails x 2

1.5 About the Product

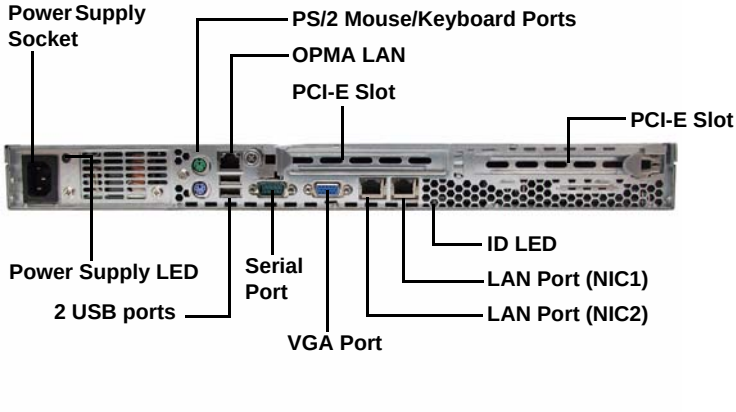
This section contains the hardware diagrams and a block diagram of the GT24 system.

1.5.1 System Front View

B2912G24V4H/B2912G24W4H



1.5.2 System Rear View



1.5.3 LED Definition

Front Panel

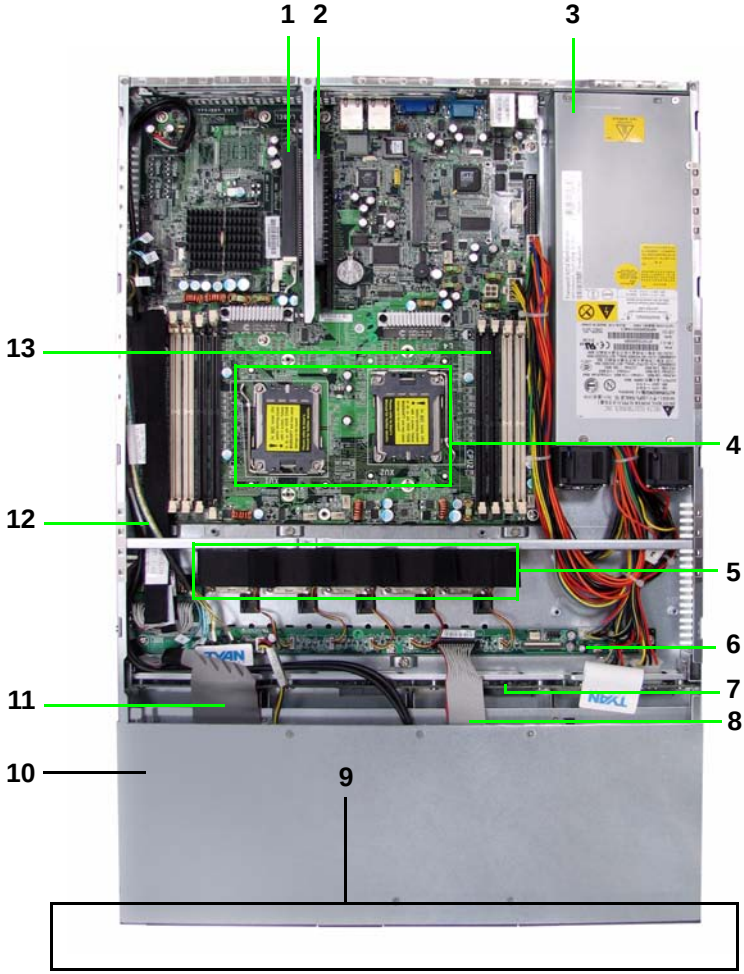
LED	Color	State	Description
Power	Green	ON	Power ON
	OFF	OFF	Power OFF
HDD Activity	Amber	Random Blinking	HDD access activity
	OFF	OFF	No disk activity
LAN1/LAN2 Activity	Green	ON	LAN linked
	Green	Blinking	LAN accessing
	OFF	OFF	No LAN linked
Warning	Reserved LED for future upgrade. It is not functional in the B2912 barebone now.		
ID LED	Reserved LED for future upgrade. It is not functional in the B2912 barebone now.		
Hot Swappable HDD Tray Power LED	Green	ON	Power connected
	OFF	OFF	Power disconnected
Hot Swappable SATA HDD Access LED	Amber	Random Blinking	HDD access activity
	OFF	OFF	No disk activity
Hot Swappable SAS HDD Access LED	Amber	ON	HDD ready
	Amber	Random Blinking	HDD access activity
	OFF	OFF	HDD not ready

Rear I/O LED

LED	Color	State	Description
RJ45 NIC1/NIC2 Activity (Left Side)	Green	Blinking	10Mb/100Mb linked
	OFF	OFF	No LAN linked
RJ45 NIC1/NIC2 Linkage (Right Side)	Green	ON	10Mb activity, 100Mb/1000Mb linked
	Green	Blinking	100Mb/1000Mb activity
	OFF	OFF	NO LAN linked
ID LED	Blue	ON	System is identified
	OFF	OFF	System is not identified
Delta Power Supply LED	Green	ON	Output ON and OK
	Green	1Hz Blinking	AC present/Only 5Vsb ON
	Amber	ON	Power supply critical event causing a shutdown: failure, OCP, OVP, fan fail
	Amber	1Hz Blinking	Power supply warning event where the power supply continues to operate: high temp., high power, high current, slow fan
	OFF	OFF	No AC power

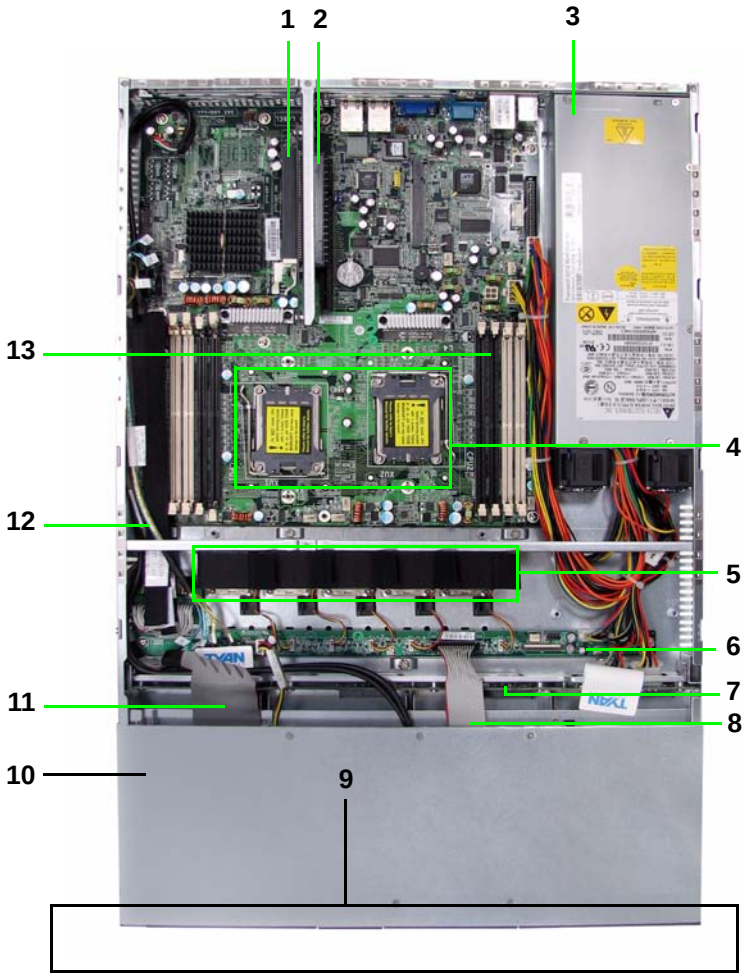
1.5.4 System Internal View

B2912G24V4H



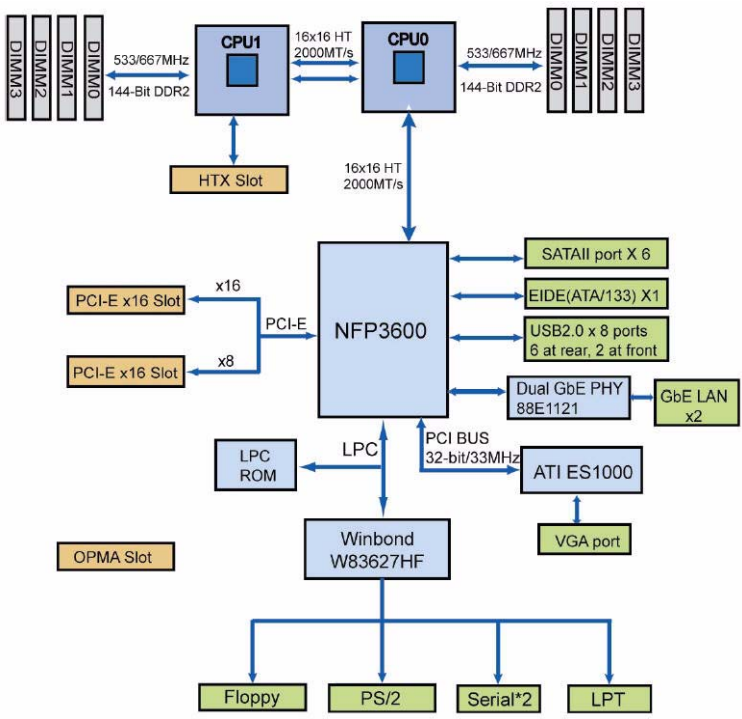
1. PCI-E x16 Slot (with riser card M2083 or PCI-X riser card M2061)
2. PCI-E x8 Slot (with riser card M2081-2)
3. EPS 12V Power Supply
4. CPU Sockets
5. System Fans (Right to left: FAN1, FAN2, FAN3, FAN4, FAN5)
6. Adapter Board
7. SAS/SATA Backplane
8. LED Control Board Cable
9. Four SAS/SATA HDDs
10. Slim DVD-ROM
11. DVD-ROM Cable
12. SAS/SATA cables
13. Memory Slots

B2912G24W4H

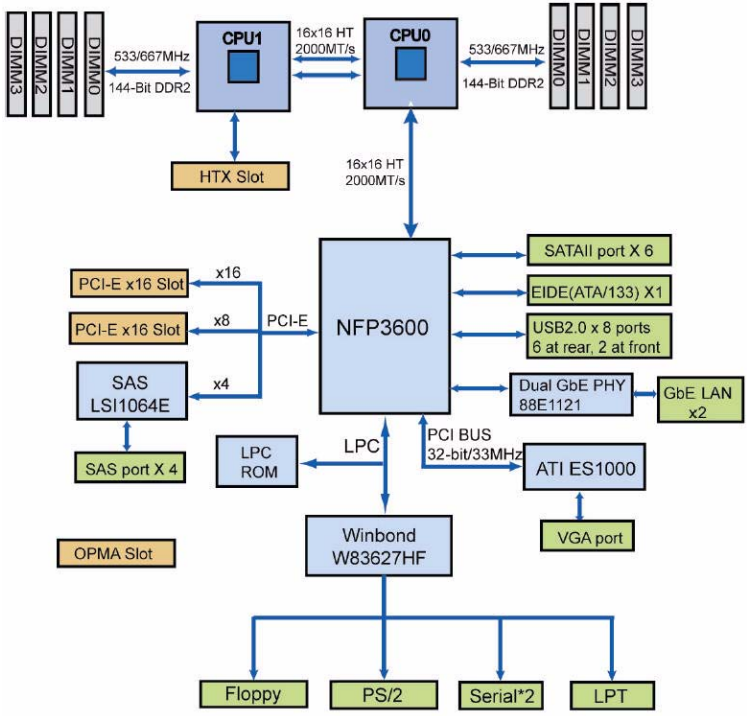


1. PCI-E x16 Slot (with riser card M2083 or PCI-X riser card M2061)
2. PCI-E x8 Slot (with riser card M2081-2)
3. EPS 12V Power Supply
4. CPU Sockets
5. System Fans (Right to left: FAN1, FAN2, FAN3, FAN4, FAN5)
6. Adapter Board
7. SAS/SATA Backplane
8. LED Control Board Cable
9. Four SAS/SATA HDDs
10. Slim DVD-ROM
11. DVD-ROM Cable
12. SAS/SATA cables
13. Memory Slots

1.5.5 Motherboard (S2912) Block Diagram

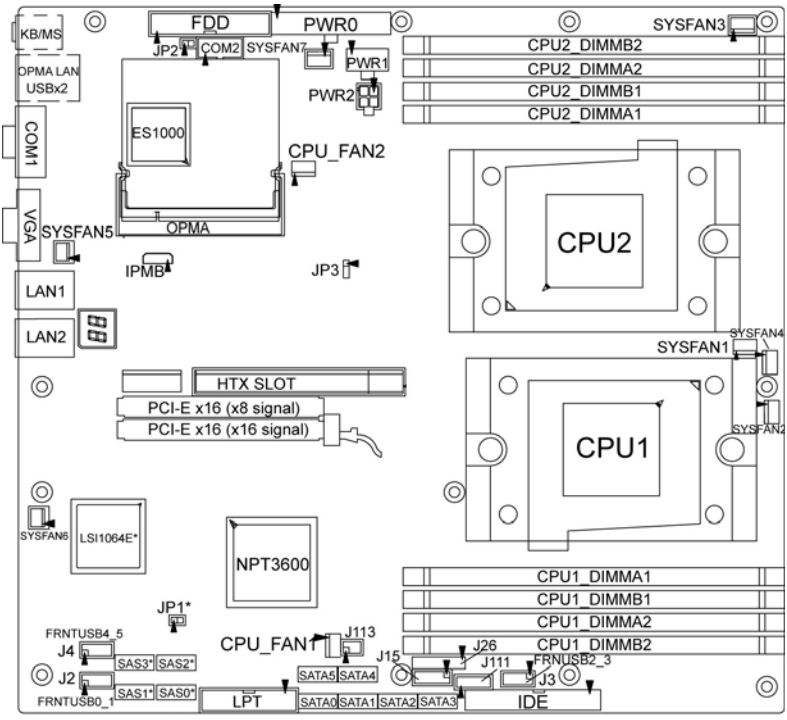


Thunder n3600R (S2912G2NR) Block Diagram



Thunder n3600R (S2912WG2NR) Block Diagram

1.5.6 S2912 Board Parts, Jumpers, and Connectors



*Only for S2912WG2NR SKU

CPU_FAN1/CPU_FAN2
- CPU Fan Connector

SYSFAN1/2/3/4/5/6/7
- Fan Connector

J14
- IPMB Connector

COM2 (J95)
- COM2 Header

J2/J3/J4
- USB Front Panel Connector

J113
- LCD Model Pin Header

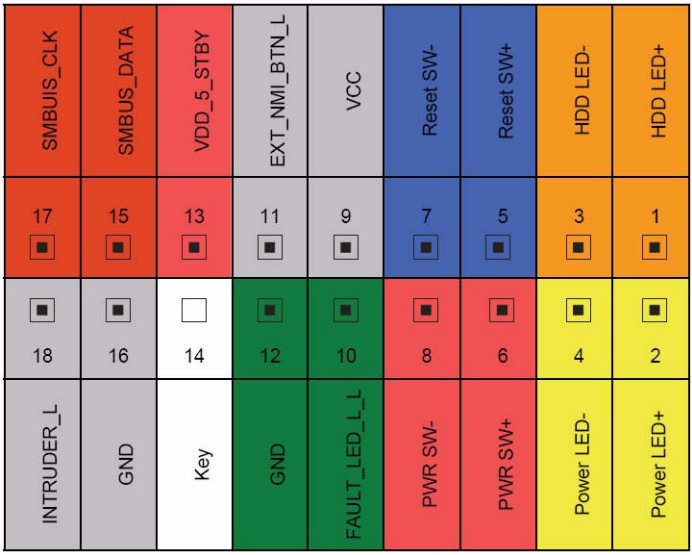
J15/J111
- Reserved for Barebone

JP1 SAS Disable Jumper
Open: Enable (default)
Closed: Disable

JP2 OPMA Card Select Jumper
Open: Enable (default)
Closed: Disable

JP3 Clear CMOS Jumper
Pin 1-2 Closed: normal (default)
Pin 2-3 Closed: clear CMOS

J26 Front Panel Header



Power Supply

The Thunder n3600R

S2912 is EPS12V compatible.

All 3 power connectors are required:

EPS 12V (24-pin) +

EPS 12V (8-pin) +

EPS 12V (4-pin)

Check User's Manual for details.

Chapter 2: Setting Up

2.0.1 Before You Begin

This chapter explains how to install the CPU, CPU heatsink, memory modules, and hard drives. Instructions on inserting a PCI card are also given.

Take note of the precautions mentioned in this section when installing your system.

2.0.2 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers prevents them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

2.0.3 Tools

The following procedures require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected using your fingers. It is recommended that you do not use needle-nosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

2.0.4 Precautions

Components and electronic circuit boards can be damaged by discharges of static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the Transport GT24 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from the power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.
- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.
- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.
- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Notes:

- All connectors are keyed to only attach one way.
- Always use the correct screw size as indicated in the procedures.

2.1 Rack Mounting

After installing the necessary components, the Transport GT24 can be mounted in a rack using the supplied rack mounting kit.

Rack mounting kit

Sliding Rails x 2:

Sliding Brackets x 4 (Front x 2, Rear x 2)

Mounting Ears x 2

Screws Kit x 1

Mounting Brackets x 4

2.1.1 Installing the Server in a Rack

Follow these instructions to mount the Transport GT24 into an industry standard 19" rack.

NOTE: Before mounting the Transport GT24 in a rack, ensure that all internal components have been installed and that the unit has been fully tested.

Screws List (including screws for SMDC)

A: Flat 6#-32 x4~x16

B: B-type 6#-32 x4

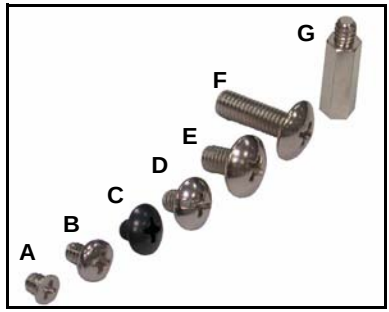
C: M4-4L x8

D: M4-5L x4

E: M4-8L x8

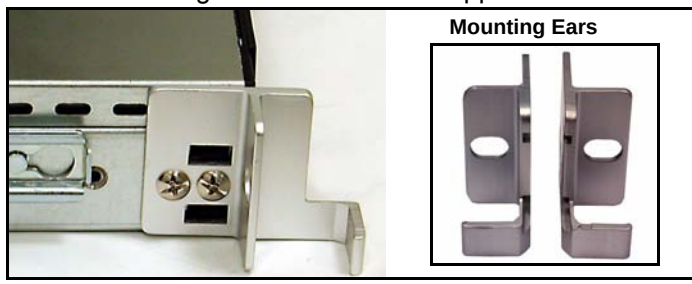
F: M4-15L x2

G: 13.5mm stand-off x1

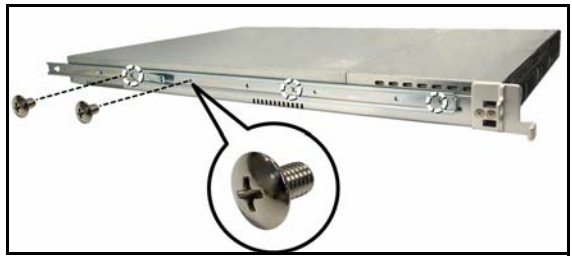


Installing the Inner Rails to Chassis

1. Screw the mounting ear to each side of Transport GT24 as shown using 2 screws from the supplied screws kit.

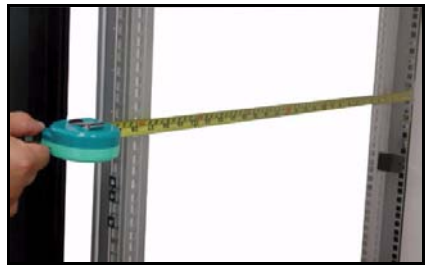


2. Draw out the inner rails from rail assembly. Install inner rails to left and right sides of chassis using 2 M4-5L(D) screws for each side.

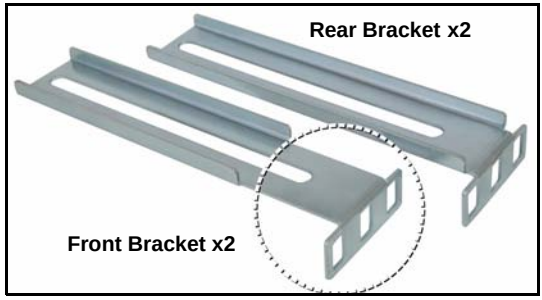


Installing Outer Rails to the Rack

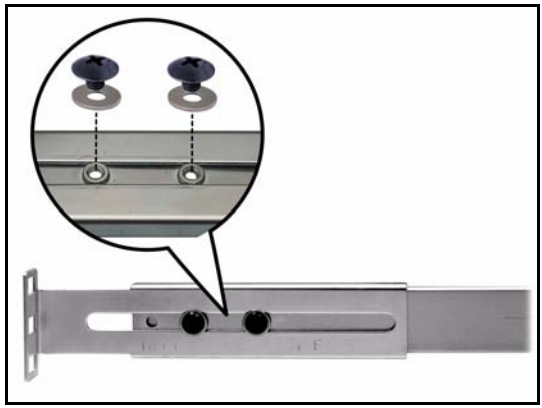
3. Measure the distance between inner side of the front and rear mounting brackets in the rack.



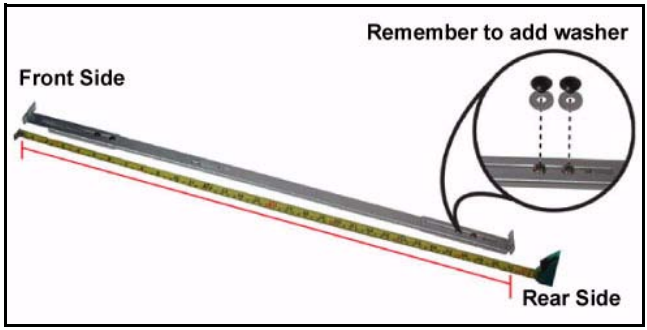
4. Locate the front and rear brackets.



5. Reserve 40mm on the front bracket. Secure the front bracket to outer rail with 2 M4-4L(C) screws.



6. Reserve the distance same as in Step 2 on rear bracket. Secure the rear bracket to outer rail with 2 M4-4L(C) screws.



7. Secure the outer rail to the rack using 2 brackets and 4 M4-8L(E) screws for each side (A). Secure the mounting brackets from inside, not outside, of the rack (B).

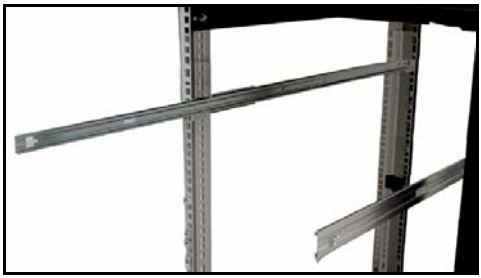
A

Mounting Bracket

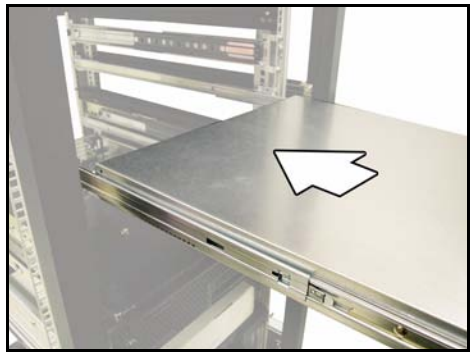
B

Rackmounting the Server

8. Draw out the middle rail to the latch position.

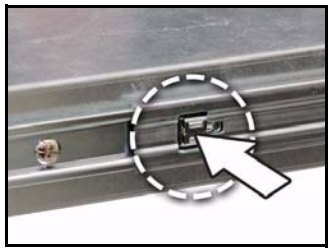


9. Lift the chassis and then insert the inner slide rails into the middle rails.

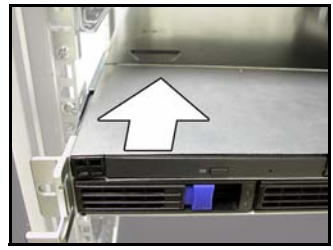


10. Push the chassis in and press the latch key (A). Then push the whole system into the rack (B).

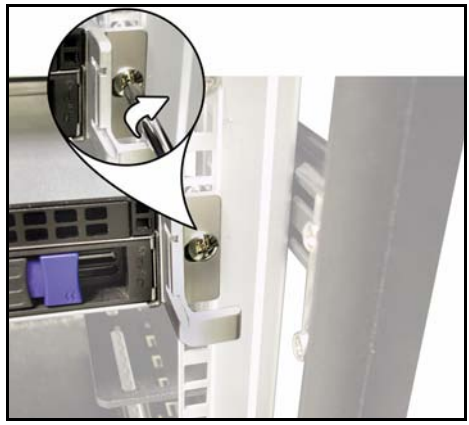
A



B



11. Secure the mounting ears of chassis to the rack with 2 M4-15L(F) screws.



NOTE: To avoid injury, it is strongly recommended that two people lift the Transport GT24 into the place while a third person screws it to the rack.

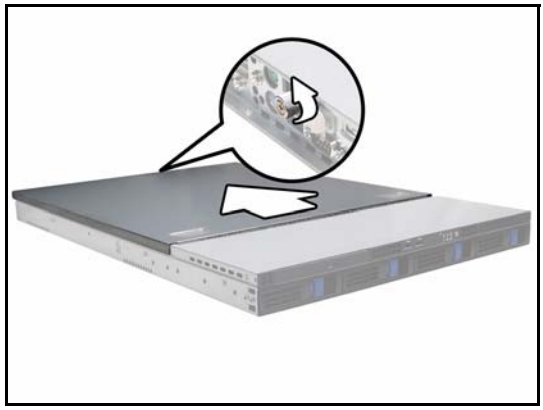
2.2 Installing Motherboard Components

This section describes how to install components on to the motherboard, including CPU, memory modules and PCI card.

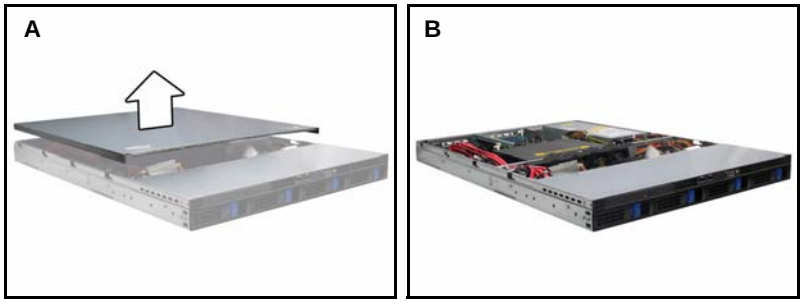
2.2.1 Removing the Chassis Cover

Follow these instructions to remove the Transport GT24 chassis cover.

1. Release the screw on the back side. Then slide the chassis cover in the direction of arrow.



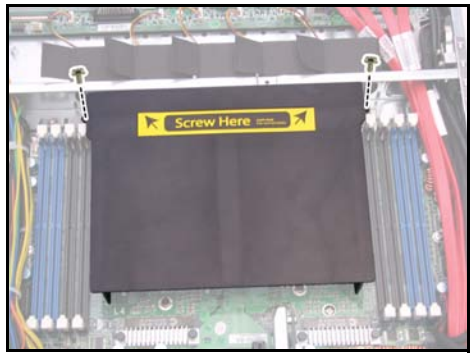
2. Lift the cover off.



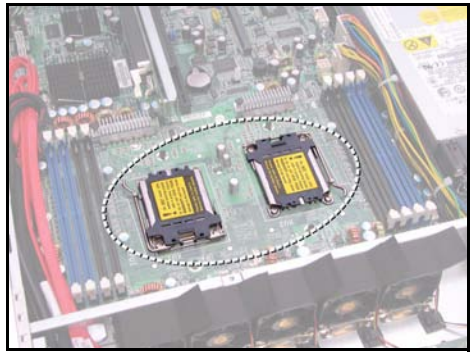
2.2.2 Installing the CPU, Heatsink, and Air Duct

Follow these instructions to install the CPU, CPU heatsink and air duct.

1. Remove the two screws securing the pre-installed air duct.

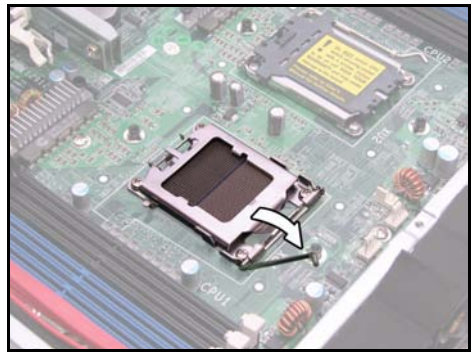


2. Remove the air duct and locate the CPU sockets.

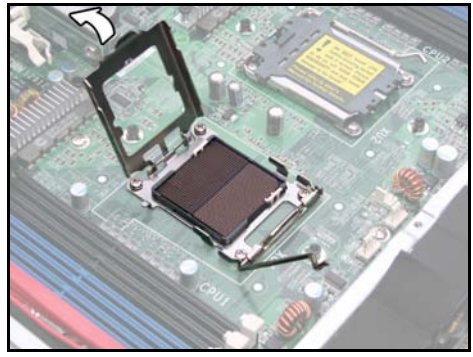


3. Take off the CPU protection cap.

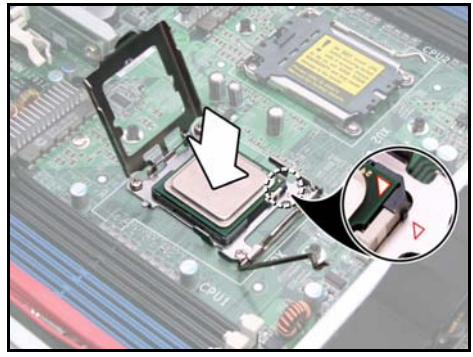
4. Pull the CPU lever up to unlock the CPU socket.



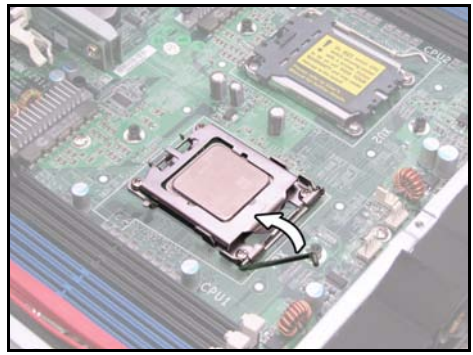
5. Open the socket in the direction as shown.



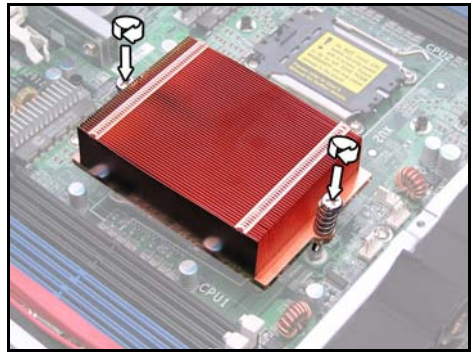
6. Place the CPU in the CPU socket, ensuring that pin 1 is located as shown below.



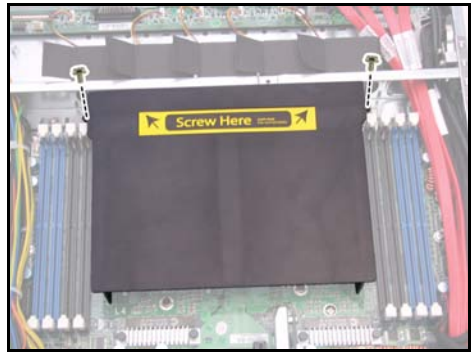
7. Close the socket and press the CPU socket lever down to secure the CPU.



8. Place the heatsink on top of the CPU and screw into place as shown.



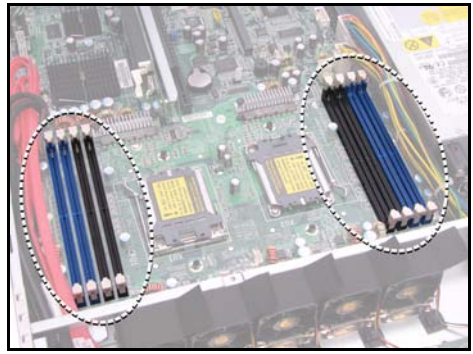
9. Place and screw the air duct back with two screws.



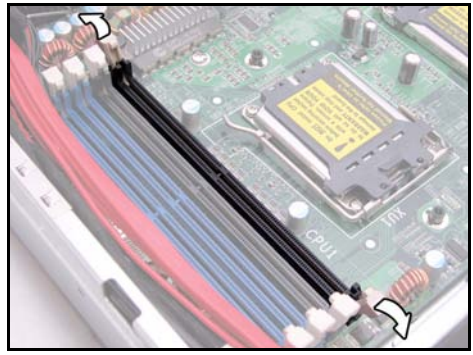
2.2.3 Installing the Memory

Follow these instructions to install the memory modules on the motherboard.

1. Locate the memory slots on the motherboard.

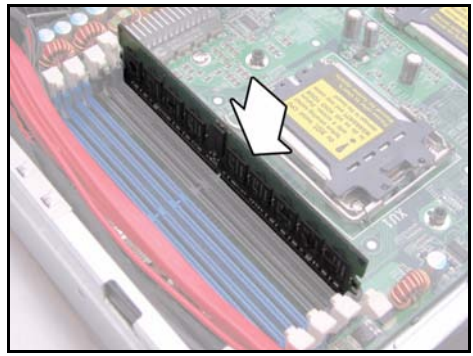


2. Press the memory slot locking levers in the direction of the arrows as shown in the following illustration.



3. Align the memory module with the slot. The module has indentations that align with notches in the slots.

4. Insert the memory module into the slot as shown.



When inserted properly, the memory slot locking levers lock automatically onto the indentations at the ends of the module.

Attention When Installing the Memory!

Please be noticed always install memory DIMMs in pairs starting from the outer most DIMM slots CPU1_DIMMA2 and CPU1_DIMMB2.

Refer to the following table for supported DDR2 populations, and check the user's manual for the details.

(Note: X indicates a populated DIMM slot)

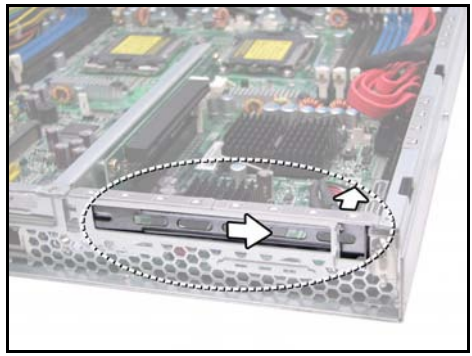
	Single CPU Installed (CPU1 only)		Dual CPU installed (CPU1 and CPU2)	
Population Option	1	2	3	4
CPU1_DIMMA1		X		X
CPU1_DIMMB1		X		X
CPU1_DIMMA2	X	X	X	X
CPU1_DIMMB2	X	X	X	X
CPU2_DIMMA1				X
CPU2_DIMMB1				X
CPU2_DIMMA2			X	X
CPU2_DIMMB2			X	X

2.2.4 Installing a PCI-E Card

There is one PCI-E slot on the rear panel of GT24. Refer to the procedures below for PCI-E installation.

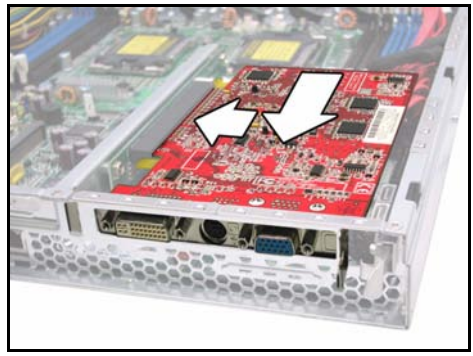
1. Push the tab of PCI-E slot on the rear panel in the direction as shown to release the bracket.

2. Move the bracket to right as shown.

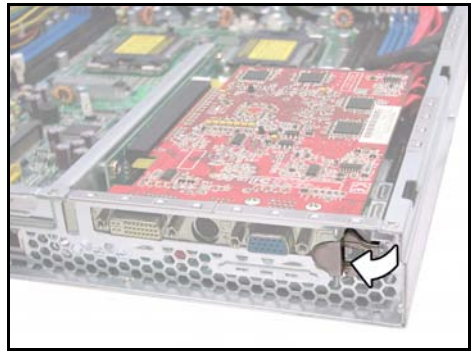


3. Locate the pre-installed PCI-E riser.

4. Insert the PCI-E card as shown.



5. Push the tab of PCI-E slot in the direction as shown to fix PCI-E card.



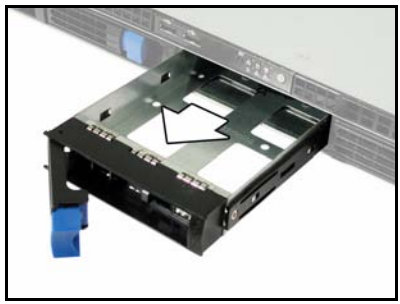
2.3 Installing the Hard Drive for GT24-B2912

The TYAN Transport GT24 barebone system supports SAS/SATA hard drives.

Follow these instructions to install a SAS/SATA hard drive for model GT24-B2912.

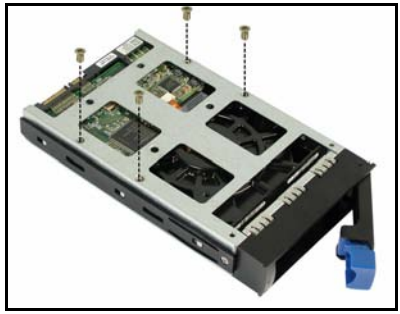
1. Press the locking lever latch in the direction of arrow (**A**) and then pull the locking lever open (**B**).

2. Slide the drive tray out.

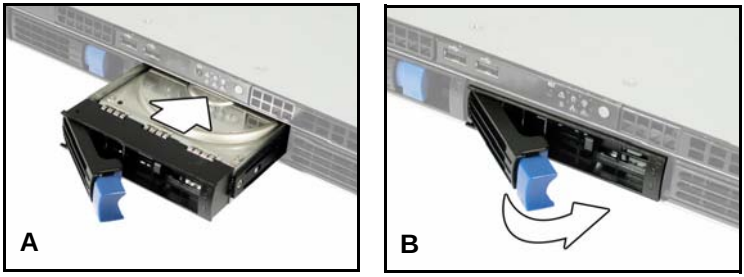


3. Place a hard drive into the drive tray.

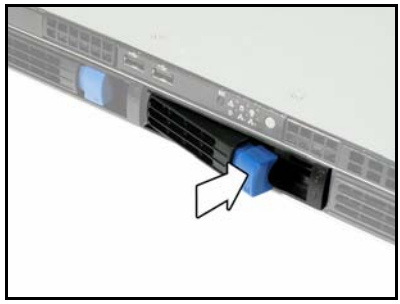
4. Using 4 HDD screws to secure the HDD.



5. Reinsert the drive tray into the chassis (A), ensuring that the drive tray is completely inserted into the chassis (B).



6. Pressing the locking lever to secure the hard drive tray.



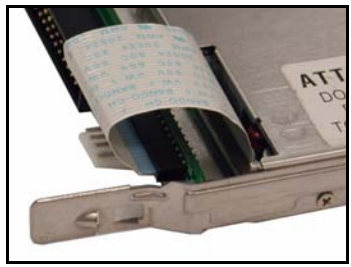
2.4 Installing the Slim FDD (Option)

1. Locate the two FDD rails and screws from the FDD kit. Secure the two rails to FDD using four screws.

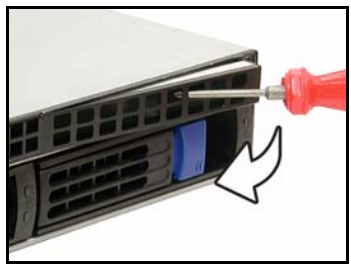
FDD Rails & Screws

2. Connect the FFC backplane to FDD using two screws.

3. Connect the FCC cable to FDD.

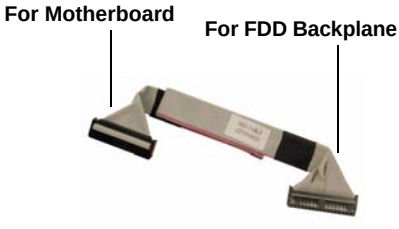


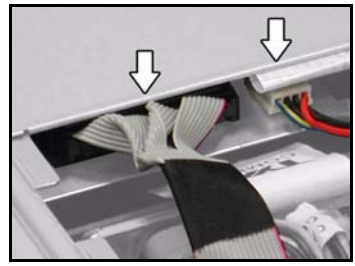
4. Using a screwdriver to pull open the door of FDD tray.



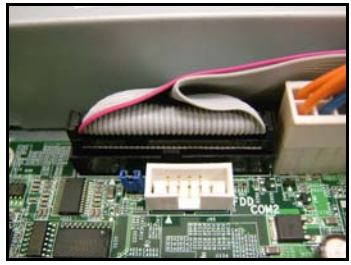
5. Insert FDD module into the tray.

6. Locate the FDD cable from FDD kit. Connect the wrinkle side to the connector on the FDD backplane. Refer to the picture below for the correct direction. Then connect the power cable of FDD to the connector on the FDD backplane.





7. Connect the other side to the connector on motherboard.



Chapter 3: Replacing Pre-Installed Components

3.1 Introduction

This chapter explains how to replace pre-installed components including the motherboard, DVD-ROM drive, LED control board, M1012 adapter board, SAS/SATA backplane, and power supply.

Take note of the precautions in this section when installing your system.

3.1.1 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers keeps them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

3.1.2 Tools

The procedures that follow require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected using your fingers. It is recommended that you do not use needle-nosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

3.1.3 Precautions

Components and electronic circuit boards can be damaged by static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the Transport GT24 or injury to yourself.

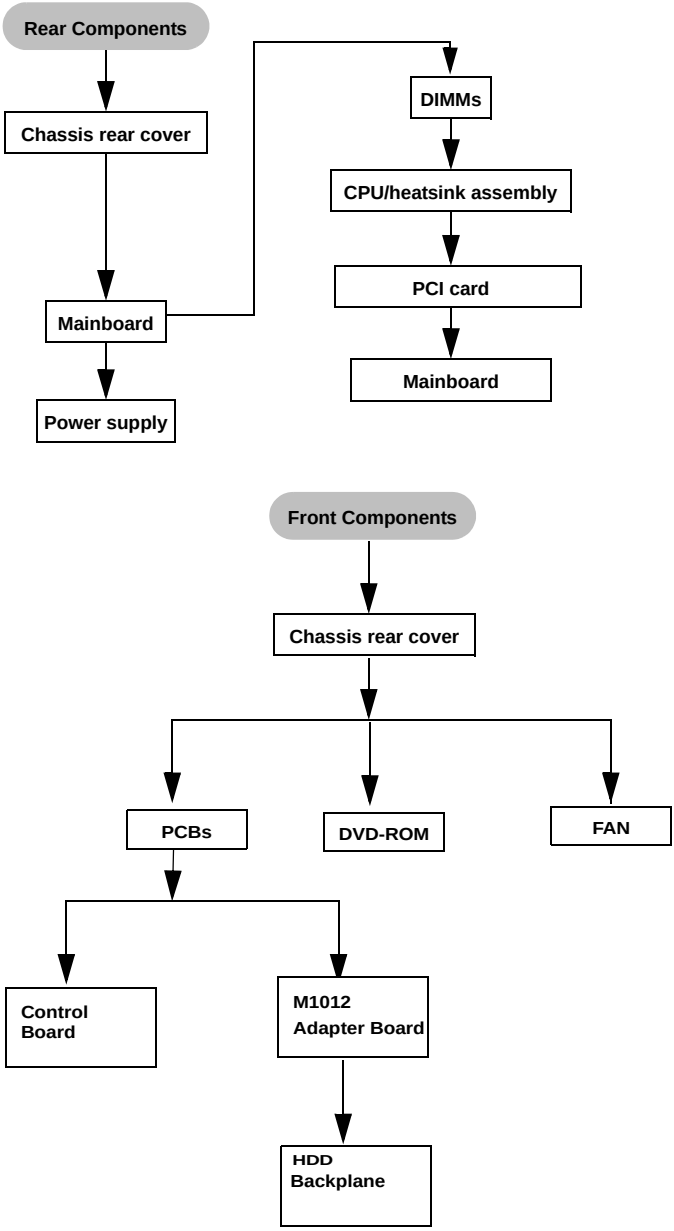
- Ground yourself properly before removing the top cover of the system. Unplug the power from your computer power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.
- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.
- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.
- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Notes:

- All connectors are keyed to only attach one way.
- Always use the correct screw size as indicated in the procedures.

3.2 Disassembly Flowchart

The following flowchart outlines the disassembly procedure.

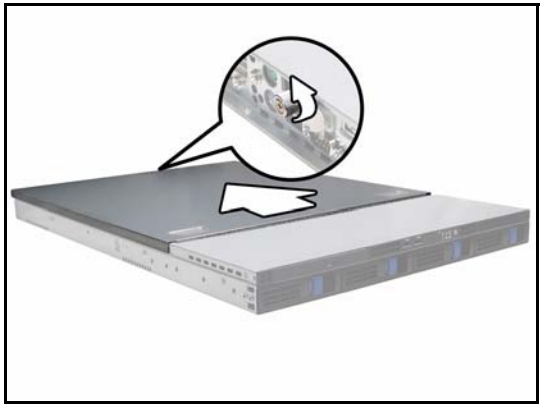


3.3 Removing the Cover

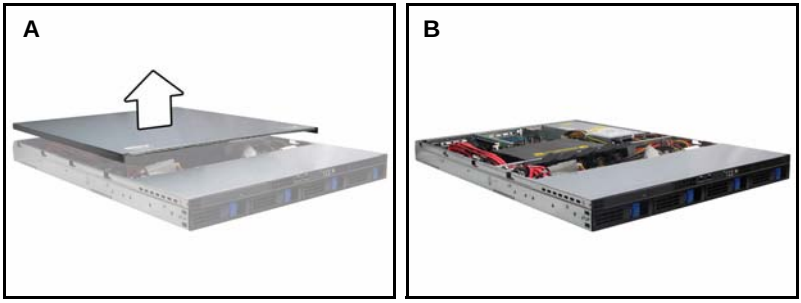
Before replacing any parts you must remove the chassis cover.

Follow these instructions to remove the cover of the Transport GT24 chassis cover.

1. Release the screw on the back side. Then slide the chassis cover in the direction of arrow.



2. Lift the cover off.



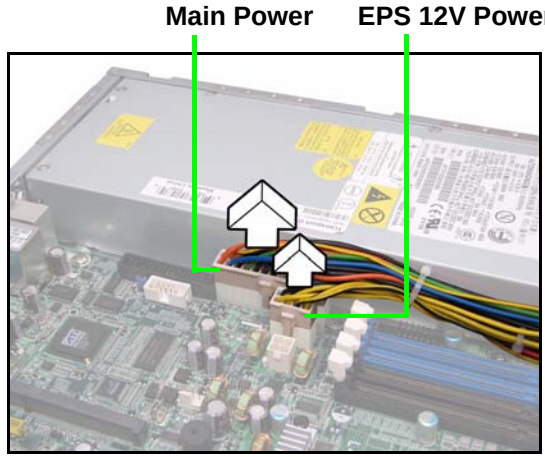
3.4 Replacing Motherboard Components

Follow these instructions to replace motherboard components, including the motherboard.

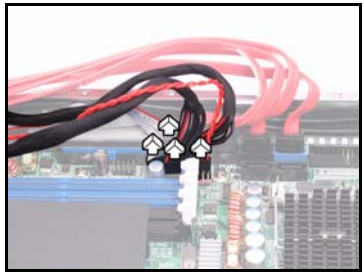
3.4.1 Disconnecting All Motherboard Cables

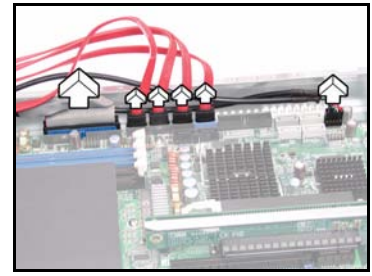
Before replacing the motherboard or certain components, remove cables connected to the motherboard. Follow these instructions to remove all motherboard cabling.

1. Disconnect ATX power cables



2. Disconnect DVD-ROM drive cable, SAS/SATA hard drive cables, USB, TYFP and fan cables. Refer to the mainboard layout for the locations.

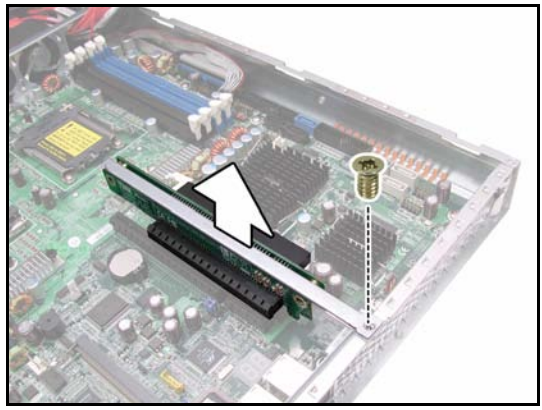




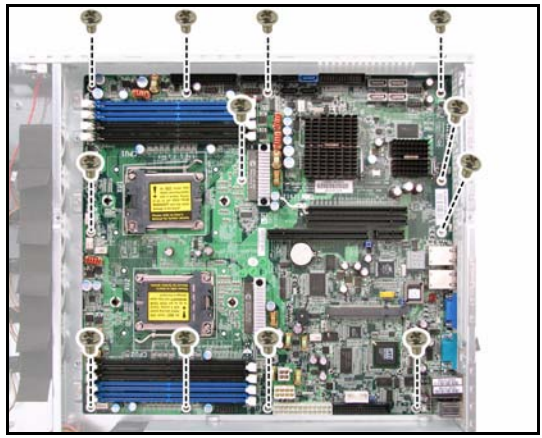
3.4.2 Removing the Motherboard

Follow these instructions to remove the motherboard from the chassis when all add-on components have been removed.

1. Remove the screw securing the link-bar to the chassis.



2. Remove twelve screws securing the motherboard to the chassis.

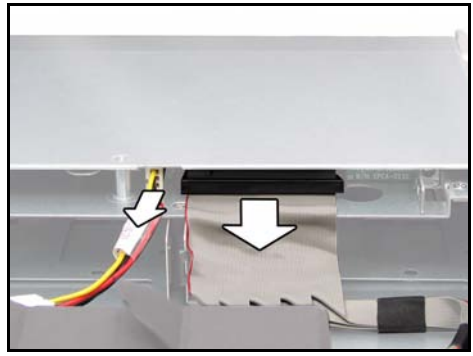


3. Remove the motherboard.

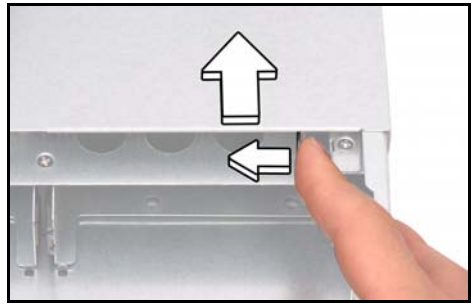
3.5 Replacing the Slim DVD-ROM

Follow these instructions to replace the DVD-ROM.

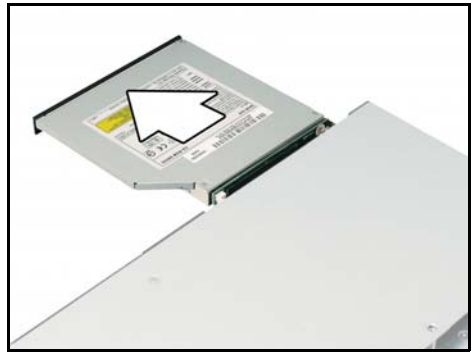
1. Remove power and data cables from the slim DVD-ROM adapter.



2. Press the tab in the directions as shown to release the DVD-ROM drive.



3. The DVD-ROM drive will be freed from the drive bay after pressing the tab.



4. Remove two screws that secure DVD-ROM drive to the bracket.

5. Replace the DVD-ROM drive.

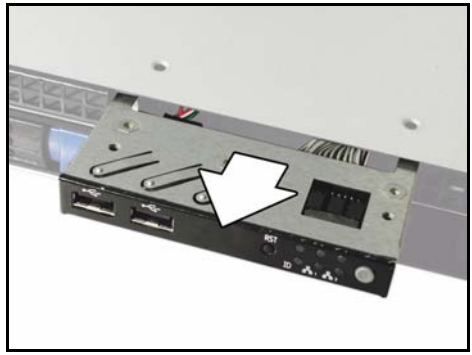
6. Secure DVD-ROM to the bracket using two screws. Then replace the unit into the drive bay and connect the DVD-ROM power and data cables.

3.6 Replacing the LED Control Board

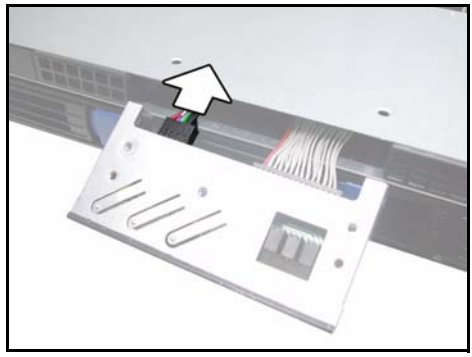
Follow these instructions to remove the LED control board.

1. Remove the two screws securing the LED control board to the chassis.

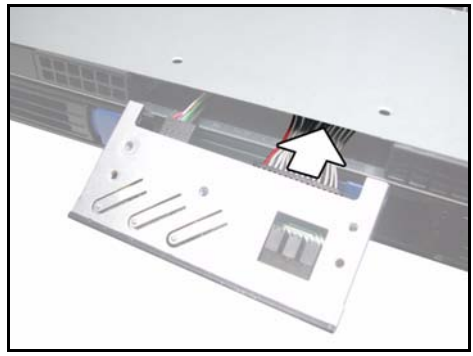
2. Lift the LED control board unit free from the chassis.



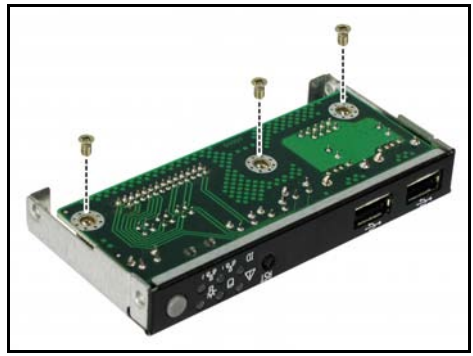
3. Unplug the USB cable from the connector.



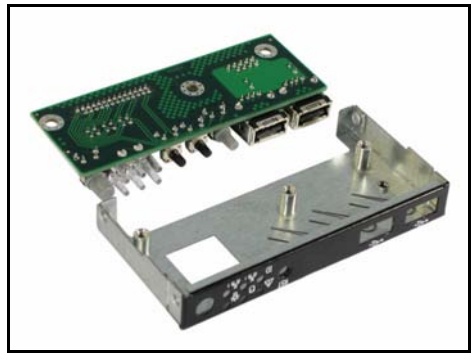
4. Unplug the ribbon cable from the connector.



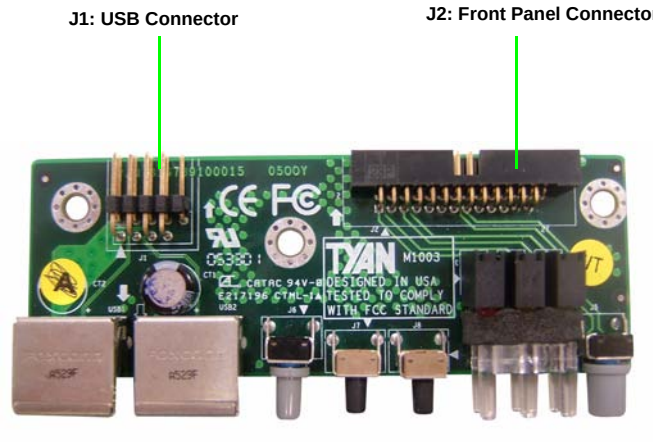
5. Remove the three screws securing the LED control board to the bracket.



6. Lift the LED control board free from the chassis. After replacement, insert the unit to the chassis following the above procedures in reverse.



3.6.1 M1003 LED Control Board Features



3.6.2 M1003 LED Control Board Connector Pin Definition

J1 USB Connector

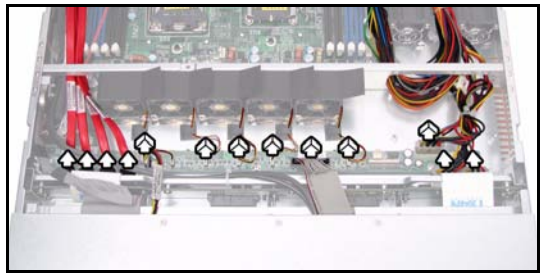
1	VCC5	2	VCC5
3	USB1-	4	USB0-
5	USB1+	6	USB0+
7	GND	8	GND
9	KEY PIN	10	GND

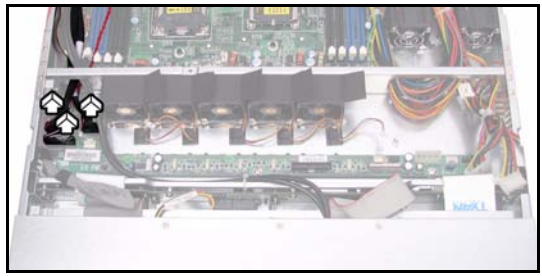
J2 Front Panel Connector

1	HDLED+	2	HDLED-
3	RESET+	4	RESET-
5	PW_LED+	6	PW_LED-
7	WLED+	8	WLED -
9	ICH_SMBDAT	10	ICH_SMBCLK
11	EXT_INT	12	VOLTAGE5
13	V5SB	14	INTRU#
15	PWR_SW+	16	PWR_SW-
17	LAN1_LED+	18	LAN1_LED -
19	LAN2_LED+	20	LAN2_LED-
21	LAN3_LED+	22	LAN3_LED-
23	ID_LED+	24	ID_LED-
25	ID_SW+	26	ID_SW-
27	KEY PIN	28	NC

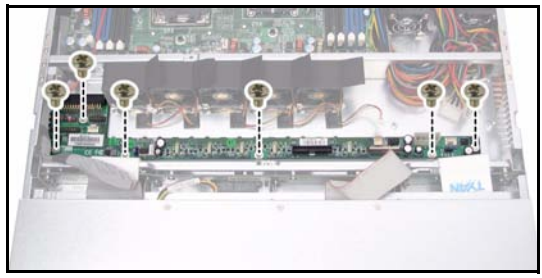
3.7 Replacing the M1012 Adapter Board

1. Remove all the cables connected to the adapter board, including SAS/SATA cables, fan cables, front panel control board cable, TYFP cables, and DVD-ROM power cables. Refer to page 42 for the locations.

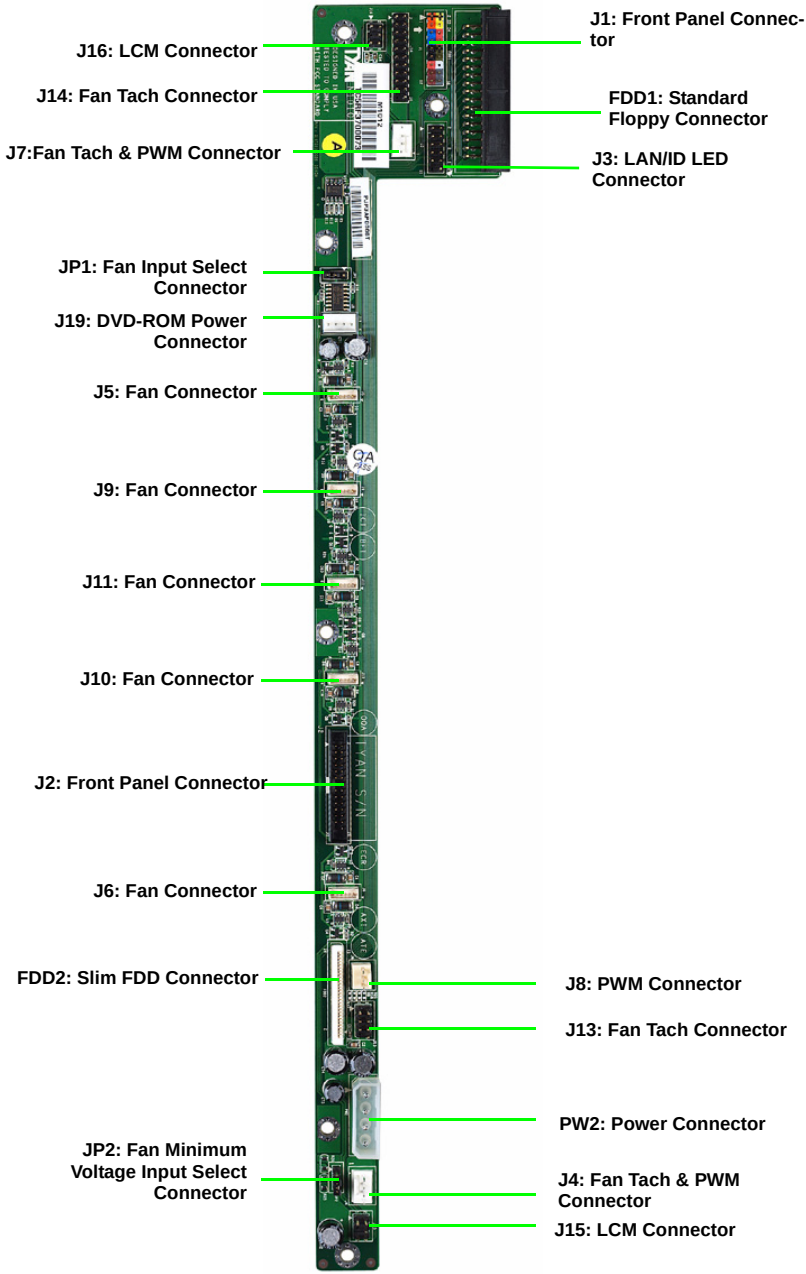




2. Remove the six screws to release the adapter board.



3.7.1 M1012 Adapter Board Features



3.7.2 M1012 Adapter Board Connector Pin Definition

J1 TYFP Front Panel Connector

1	HDLED+	2	PW_LED+
3	HDLED -	4	PW_LED -
5	RESET-	6	PWR_SW+
7	RESET+	8	PWR_SW -
9	VOLTAGE5	10	WLED+
11	EXT_INT	12	WLED-
13	V5SB	14	KEY PIN
15	ICH_SMBDAT	16	GND
17	ICH_SMBCLK	18	INTRU#

J2 Front Panel Connector

1	HDLED+	2	HDLED-
3	RESET+	4	RESET-
5	PW_LED+	6	PW_LED-
7	WLED+	8	WLED -
9	ICH_SMBDAT	10	ICH_SMSCLK
11	EXT_INT	12	VOLTAGE5
13	V5SB	14	INTRU#
15	PWR_SW+	16	PWR_SW-
17	LAN1_LED+	18	LAN1_LED -
19	LAN2_LED+	20	LAN2_LED-
21	LAN3_LED+	22	LAN3_LED-
23	ID_LED+	24	ID_LED-
25	ID_SW+	26	ID_SW-
27	KEY PIN	28	NC

J3 LAN/ID LED Connector

1	LAN1_LED+	2	LAN1_LED-
3	LAN2_LED+	4	LAN2_LED-
5	LAN3_LED+	6	LAN3_LED-
7	ID_LED+	8	ID_LED-
9	ID_SW+	10	ID_SW-
11	KEY PIN	12	NC

FAN Signal Related Connector Pin Definition

NOTE: The FAN signal naming is based on HW circuit design only. It might be different from the system fan naming.

J4 Fan TACH & PWM Connector

1	GND
2	NC
3	FAN1_TACH
4	PWM1 (Default)

J7 Fan TACH & PWM Connector

1	GND
2	NC
3	FAN7_TACH
4	PWM1 (Default)

J8 PWM Connector

1	GND
2	PWM2
3	FAN1_TACH

J13 Fan TACH Connector

1	GND	2	FAN1_TACH
3	GND	4	FAN2_TACH
5	GND	6	FAN3_TACH
7	KEY PIN	8	NC

J14 Fan TACH Connector

1	GND	2	FAN1_TACH
3	GND	4	FAN2_TACH
5	GND	6	FAN3_TACH
7	GND	8	FAN4_TACH
9	GND	10	FAN5_TACH
11	GND	12	FAN6_TACH
13	GND	14	FAN7_TACH
15	GND	16	FAN8_TACH
17	GND	18	FAN9_TACH
19	GND	20	FAN10_TACH
21	KEY PIN	22	PWM

J6 Fan Connector

1	FAN1_12VPWM
2	FAN1_TACH
3	GND
4	GND
5	FAN2_TACH
6	FAN2_12VPWM

J10 Fan Connector

1	FAN3_12VPWM
2	FAN3_TACH
3	GND
4	GND
5	FAN4_TACH
6	FAN4_12VPWM

J11 Fan Connector

1	FAN5_12VPWM
2	FAN5_TACH
3	GND
4	GND
5	FAN6_TACH
6	FAN6_12VPWM

J9 Fan Connector

1	FAN7_12VPWM
2	FAN7_TACH
3	GND
4	GND
5	FAN8_TACH
6	FAN8_12VPWM

J5 Fan Connector

1	FAN9_12VPWM
2	FAN9_TACH
3	GND
4	GND
5	FAN10_TACH
6	FAN10_12VPWM

J15 & J16 LCM Connectors

1	LCM_+5V	2	LCM_SIN
3	KEY PIN	4	GND
5	LCM_+5VSB	6	LCM_SOUT

JP1 Fan Input Select Connector

Pin1 & Pin2 Close	Fan PWM signal from J8
Pin2 & Pin3 Close	Fan PWM signal from J4, J7 & J14 (Default)

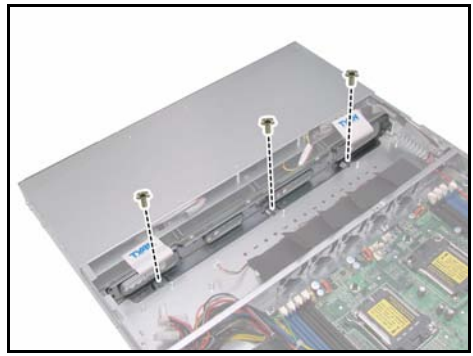
JP2 Fan Input Select Connector

Pin1 & Pin2 Close	0V
Pin2 & Pin3 Close	+5V (Default)

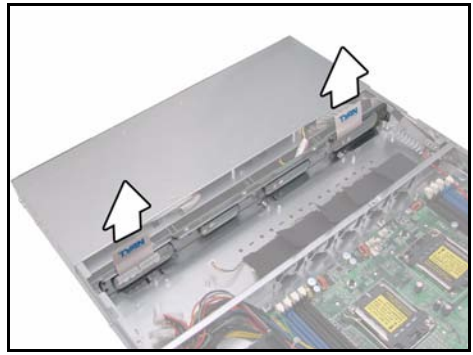
3.8 Replacing the SAS/SATA Backplane

NOTE: The procedures for replacing SAS/SATA backplanes are the same.

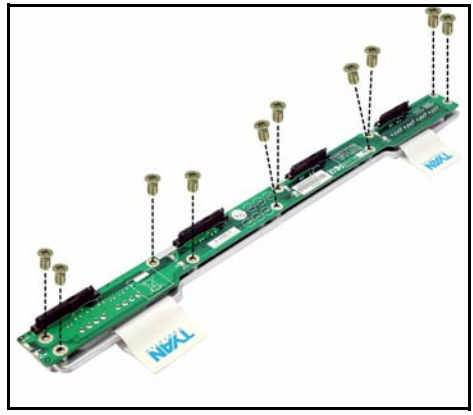
1. Remove the three screws securing the adapter board to the chassis.



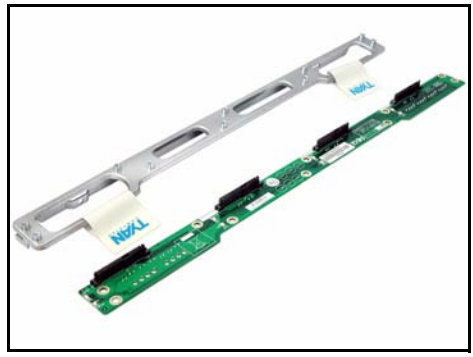
2. Grab the two lables to lift the adapter board.



3. Remove the ten screws that secure the bracket to the adapter board.

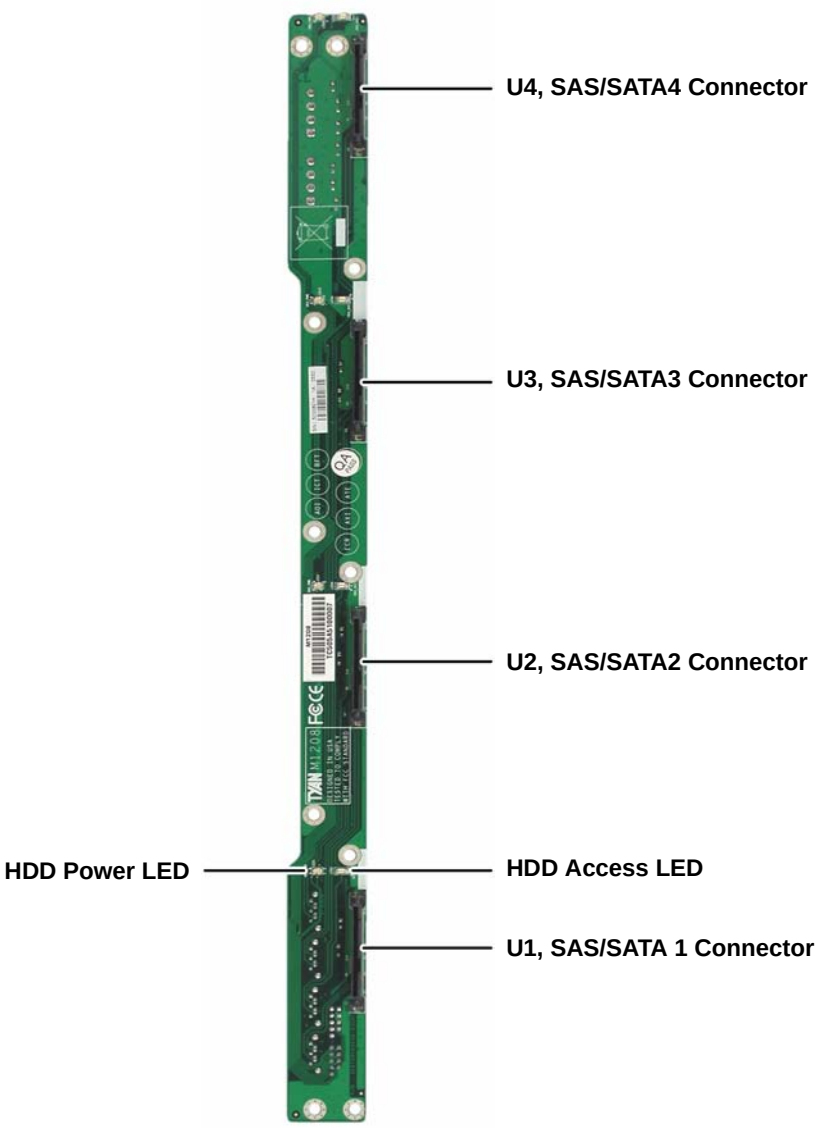


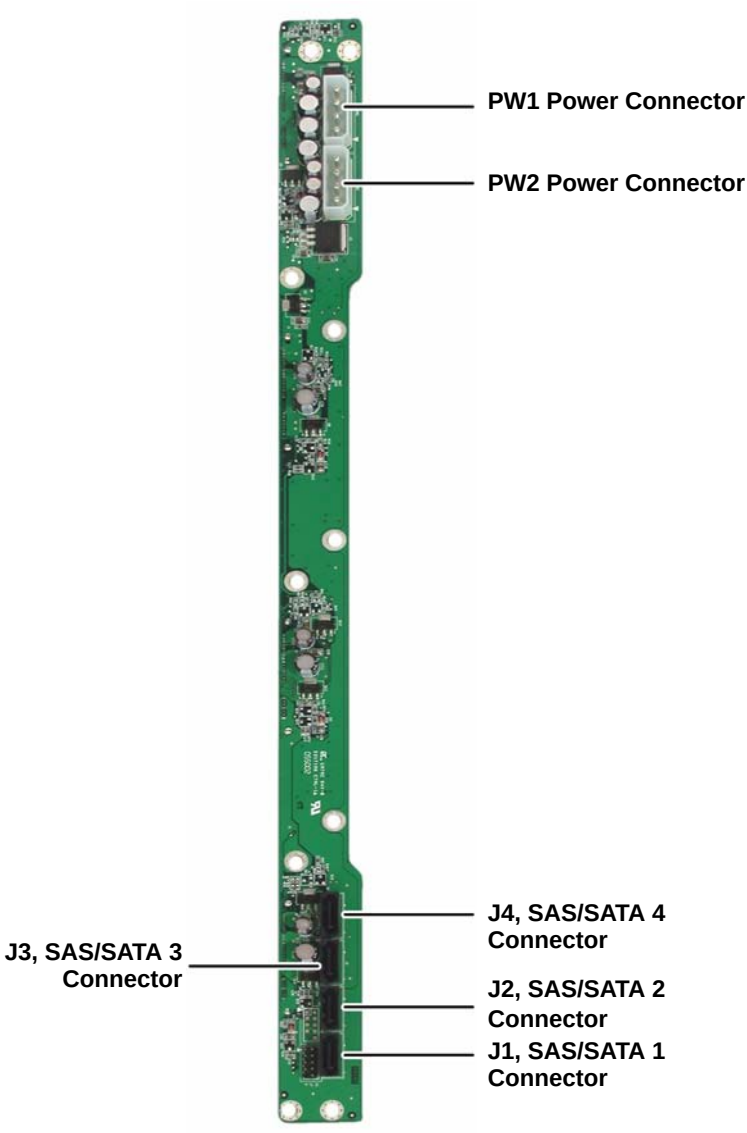
4. Release the adapter board free from the bracket.



5. Replace the unit to the chassis following the above procedures in reverse.

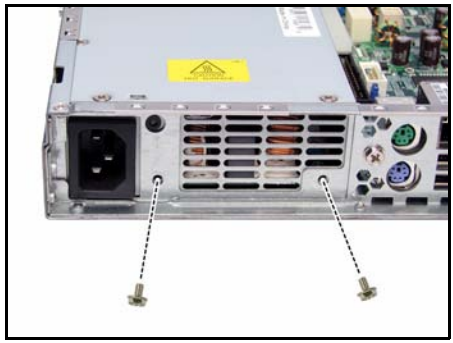
3.8.1 SAS/SATA Backplane (M1208) Features




PW1 Power Connector
PW2 Power Connector
J4, SAS/SATA 4 Connector
J3, SAS/SATA 3 Connector
J2, SAS/SATA 2 Connector
J1, SAS/SATA 1 Connector

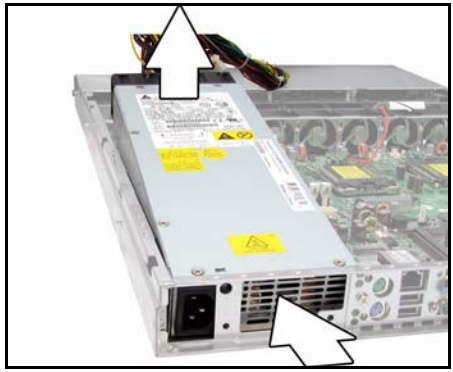
3.9 Replacing the Power Supply

1. Remove the two screws that secure the power supply to the chassis.



2. Remove the screw that secure the power supply to the chassis

3. Lift the power supply free from the chassis.



4. Place a new power supply in position in the chassis and secure in place with the three screws.

Appendix I: BIOS Differences

The BIOS of B2912 is similar to the BIOS of S2912. There is only one menu different. You may refer to the attached motherboard manual for the complete BIOS information. The differences between B2912 and S2912 is on the "Advanced/Hardware Health Information" menu. See the following for the differences.

S2912 Advanced/Hardware Health Information

PhoenixBIOS Setup

Advanced

Hardware Monitor		Item Specific Help
AutoFan Mode	[Auto]	Only 4-pin header Fan can be controlled here. 3-pin Fan can only be displayed fan speed. AUto fan feature do not cover SYSFAN7 on silk screen. The setting will be functional after system Reset.
CPU1 Temperature	xxx ºC	
CPU2 Temperature	xxx ºC	
System Temp1	xxx ºC	
System Temp2	xxx ºC	
System Temp3	xxx ºC	
System Temp4	xxx ºC	
CPU1 Fan(J108) Speed	xxxx RPM	
SYSFAN1(J105) Speed	xxxx RPM	
SYSFAN2(J106) Speed	xxxx RPM	
SYSFAN3(J107) Speed	xxxx RPM	
CPU2 Fan(J110) Speed	xxxx RPM	
SYSFAN4(J109) Speed	xxxx RPM	
SYSFAN5(J103) Speed	xxxx RPM	
SYSFAN6(J102) Speed	xxxx RPM	
CPU1 Vcore	xxxx V	
VDD 3.3V	xxxx V	
VDD 3.3V Dual1	xxxx V	
5VSB	xxxx V	
1.2V	xxxx V	
CPU2 Vcore	xxxx V	
CPU1 DDR2 1.8V	xxxx V	
VDD 3.3V Dual 12	xxxx V	

F1	Help	↑↓	Select Item	-/+	Change Values	F9	Setup Defaults
Esc	Exit	←→	Select Menu	Enter	Select ▶ Sub-Menu	F10	Previous Values

B2912 Advanced/Hardware Health Information

Phoenix TrustedCore (tm) Setup Utility Advanced		
Hardware Monitor		Item Specific Help
AutoFan Mode ▶ Realtime Sensor Data	[Auto]	This screen contains info from motherboard sensors, such as temperature and fan speed.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults Esc Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit		

Phoenix TrustedCore (tm) Setup Utility Advanced		
Realtime Sensor Data		Item Specific Help
CPU1 Temperature	xxx ºC	
CPU2 Temperature	xxx ºC	
System Temp1	xxx ºC	
System Temp2	xxx ºC	
System Temp3	xxx ºC	
System Temp4	xxx ºC	
SYSTEM FAN1	xxxx RPM	
SYSTEM FAN2	xxxx RPM	
SYSTEM FAN3	xxxx RPM	
SYSTEM FAN4	xxxx RPM	
SYSTEM FAN5	xxxx RPM	
CPU1 Vcore	xxxx V	
VDD 3.3V	xxxx V	
VDD 3.3V Dual1	xxxx V	
5VSB	xxxx V	
1.2V	xxxx V	
CPU2 Vcore	xxxx V	
CPU1 DDR2 1.8V	xxxx V	
VDD 3.3V Dual 12	xxxx V	
CPU2 DDR2 1.8V	xxxx V	
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults Esc Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit		

Table of Differences

	S2912	**B2912**
Auto Fan Control	Disabled	Enabled
Hardware Monitor Fan	CPU1 Fan(J108) Speed SYSFAN1(J105) Speed SYSFAN1(J106) Speed SYSFAN1(J107) Speed CPU2 Fan(J110) Speed SYSFAN4(J109) Speed SYSFAN5(J103) Speed SYSFAN6(J102) Speed	System FAN1 System FAN2 System FAN3 System FAN4 System FAN5

Appendix II: Cable Connection Tables

SAS/SATA Cables

Table 1: B2912G24V4H

M1208 SATA Backplane	Connect to	Motherboard
J1 (SAS/SATA 1)	→	SATA 0
J2 (SAS/SATA 2)	→	SATA 1
J3 (SAS/SATA 3)	→	SATA 2
J4 (SAS/SATA 4)	→	SATA 3

Table 2: B2912G24W4H

M1208 SATA Backplane	Connect to	Motherboard
J1 (SAS/SATA 1)	→	SAS 0
J2 (SAS/SATA 2)	→	SAS 1
J3 (SAS/SATA 3)	→	SAS 2
J4 (SAS/SATA 4)	→	SAS 3

FAN Cables

Table 3: System Fan to M1012 Adapter Board

System Fan	Connect to	M1012
Fan 1	→	J6 Fan Connector
Fan 2	→	J10 Fan Connector
Fan 3	→	J11 Fan Connector
Fan 4	→	J9 Fan Connector
Fan 5	→	J5 Fan Connector

Table 4: M1012 Adapter Board to Motherboard

M1012	Connect to	Motherboard Fan
J14 Fan Tach connector	→	J111 Fan connector

Power Supply Cables

Table 5: Power Supply to Motherboard

Power Supply	Connect to	Motherboard
P1 24-pin power cable	→	PWR0 24-pin connector
P2 8-pin power cable	→	PWR1 8-pin connector

Table 6: Power Supply to M1012 Adapter Board

Power Supply	Connect to	M1012
P3 4-pin power cable	→	PW2 4-pin connector

Table 7: Power Supply to M1208 SATA Backplane

Power Supply	Connect to	M1208
P4 4-pin power cable	→	PW1 4-pin connector
P6 4-pin power cable	→	PW2 4-pin connector

The Other Cables

Table 8: M1012 Adapter Board to Motherboard

M1012	Connect to	Motherboard
J1 Front Panel connector	→	J26 (TYFP1)
J3 (LAN / ID LED)	→	J15 (TYFP2)

Table 9: M1003 Front Panel Control Board Related Cables

M1003 J1 USB connector	→	Motherboard J2 (FRNTUSB0_1)
M1003 J2 connector	→	M1012 J2 connector

Table 10: DVD-ROM Related Cables

Motherboard IDE connector	→	DVD-ROM Backplane
M1012 J19 power connector	→	DVD-ROM Backplane

Table 11: Chassis Intrusion Cable

Chassis intrusion switch	→	Motherboard J26 Pin 16 & Pin 18

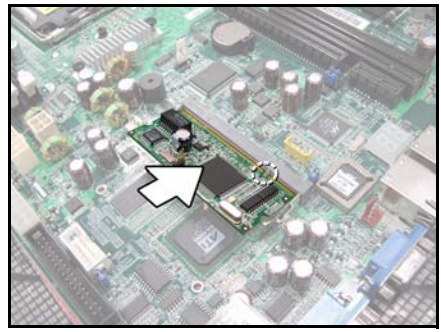
Table 12: FDD Related Cables (Option)

Motherboard FDD connector	→	FDD Backplane
Power supply P5	→	FDD Backplane

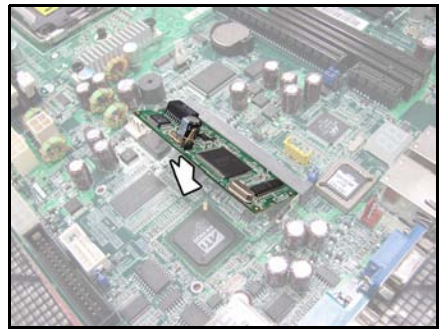
Appendix III: Installing SMDC Card

The following provides you with the information on installing M3295 SMDC card to your motherboard.

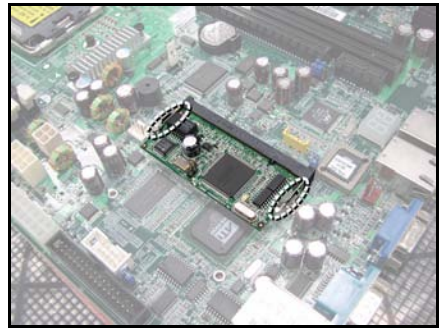
1. Insert the card with a degree about 45º into the OPMA socket on the motherboard.



2. Press down the card into the socket.



3. When properly seated, the retention clips lock into position.



Technical Support

If a problem arises with your system, you should first turn to your dealer for direct support. Your system has most likely been configured or designed by them and they should have the best idea of what hardware and software your system contains. Hence, they should be of the most assistance for you. Furthermore, if you purchased your system from a dealer near you, take the system to them directly to have it serviced instead of attempting to do so yourself (which can have expensive consequences).

If these options are not available for you then Tyan Computer Corporation can help.Besides designing innovative and quality products for over a decade, Tyan has continuously offered customers service beyond their expectations. Tyan's website (**www.tyan.com**) provides easy-to-access resources such as in-depth Linux Online Support sections with downloadable Linux drivers and comprehensive compatibility reports for chassis, memory and much more. With all these convenient resources just a few keystrokes away, users can easily find the latest software and operating system components to keep their systems running as powerful and productive as possible. Tyan also ranks high for its commitment to fast and friendly customer support through email. By offering plenty of options for users, Tyan serves multiple market segments with the industry's most competitive services to support them.

"Tyan's tech support is some of the most impressive we've seen, with great response time and exceptional organization in general" - Anandtech.com

Please feel free to contact us directly for this service at **techsupport@tyan.com**

Help Resources:

1. See the beep codes section of this manual.
2. See the TYAN website for FAQ's, bulletins, driver updates, and other information: http://www.tyan.com

3. Contact your dealer for help BEFORE calling TYAN.
4. Check the TYAN user group: alt.comp.periphs.main-board.TYAN

Returning Merchandise for Service

During the warranty period, contact your distributor or system vendor FIRST for any product problems. This warranty only covers normal customer use and does not cover damages incurred during shipping or failure due to the alteration, mis-use, abuse, or improper maintenance of products.

NOTE: A receipt or copy of your invoice marked with the date of purchase is required before any warranty service can be rendered. You may obtain service by calling the manufacturer for a Return Merchandise Authorization (RMA) number. The RMA number should be prominently displayed on the outside of the shipping carton and the package should be mailed pre-paid. TYAN will pay to have the board shipped back to you.

Transport GT24, B2912 Service Engineer's Manual v1.0

Document No. D1839-100